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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,346	01/11/2002	Bruces S. McLean	7678.585	9698

7590 02/10/2004

RICK D. NYDEGGER  
WORKMAN, NYDEGGER & SEELEY  
1000 Eagle Gate Tower  
60 East South Temple  
Salt Lake City, UT 84111

EXAMINER

HARRINGTON, ALICIA M

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 02/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/044,346

Applicant(s)

MCLEAN ET AL.

Examiner

Alicia M Harrington

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AW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 2/3/03, 7/7/03, 11/11/03.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-9, 11-14 and 18-42 is/are rejected.
- 7) ☐ Claim(s) 10, 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9&11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The Examiner has considered the Information Disclosure Statements filed on 2/3/03 and 7/7/03.
2. The information disclosure statement filed on 4/22/02 was partially considered because the listed US applications were not submitted and there was not statement of relevance as defined by the MPEP- see prior action.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "the aspheric lens" in lines 2. There is insufficient antecedent basis for this limitation in the claim.

The claims will be examined as best understood by the Examiner.

### ***Claim Rejections - 35 USC § 102***

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 18,20,22-28, 31-33,36,37,42 are rejected under 35 U.S.C. 102(e) as being anticipated by Melikechi (US 6,511,317).

Regarding claim 18, Melikechi et al discloses a dental curing device a light emitting diode (12); an aspheric lens (56) receiving light emitted from the light emitting diode, wherein the second end is configured for focusing the light received at the first end; a transparent shield (protective sheath-see col. 18, lines 52-60) configured for protecting the aspheric lens from physical contact during use and for allowing light to pass through the transparent shield.

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Regarding claim 20, Melikechi discloses the focusing assembly as defined in claim 18, wherein aspheric lens is one of either hyperbolic, ellipsoidal, and parabolic (see figure 3a and col. 15, lines 18-20).

Regarding claims 22-23, Melikechi discloses in figure 3A the first end is adjacent the LED with a gap between them.

Regarding claim 24, Melikechi discloses an extension arm (16 and 12-see figure 1).

Regarding claims 25-27, Melikechi discloses an embodiment where the lens and shield are removeably attached to the extension arm (col. 18, lines 58-60).

Regarding claim 28, Melikechi in col. 18, lines 52-60, discloses an embodiment where the shield and lens are dependent. However, in another embodiment, the shield is independent of the lens and thus the lens is independently attached to the extension arm (see col. 18, lines 53-56 and col. 16, lines 1-6).

Regarding claims 31 and 33, Melikechi discloses a main body (12); extension arm (16) with an distal end (14); a light source (42, 44; see figures 1 and 3a); a lens (56) removeably attached to the end of the extension arm distal to the main body (see col. 16, lines 1-6 or col. 18, lines 52-60) and positioned relative to the light source, and without any intervening fiber optic wand so to focus light emitted by the light source.

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Regarding claim 32, Melikechi discloses the main body has a power supply (18) for the light source.

Regarding claim 36-37, 42 Melikechi discloses an embodiment where the lens and shield are removeably attached to the extension arm (col. 18, lines 58-60).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 19, 38,39, 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melikechi et al (US 6,511,317).

Regarding claim 19, Melikechi fails to specifically disclose the lens and transparent shield comprises on of the claimed material. However, the Examiner takes official notice that lenses made of the claimed material, especially glass and plastic, and shield barriers made of optically transparent plastic material are well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to modify Melikechi, to design a lens and transparent shield from one of these claimed materials, since they are well known materials and the materials produces lenses and shields with known light transmittance qualities.

Regarding claim 38, Melikechi fails to specifically disclose the lens and the shield/sheath comprises on of the claimed material. However, the Examiner takes official notice that lenses and shield barriers made of the claimed optically transmissive material (for example: glass and plastic) are well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to design a shield from the claimed materials, since they are well-known material with known light transmittance qualities.

Regarding claim 39, Melikechi disclose the shield could be fitted to the instrument. However, Melikechi fails to specifically disclose the shield it threadably attached. However, threadably attaching optical material or capping them together would provide the equivalent function of joining them together. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi to include a threadable attachment method since fastening articles that way is known in optical coupling designs.

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Regarding claim 41, Melikechi disclose the light and lens are configured to be used in a dental curing device. Although, Melikechi fails to specifically disclose the curing Class II restorations, it is a curing process and such implementation would require an adjustment to the light source/power, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the curing device of Melikechi could be used in the claimed curing process, since Melikechi teaches exchange the light source/head to achieve the desired curing intensity.

9. Claims 1-5, 7, 8, 11-14,21, 29, 30, 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melikechi et al (US 6,511,317) in view of Adam et al (US 5,711,665).

Regarding claims 1 and 5, Melikechi et al discloses a dental curing device a light emitting diode (12); an aspheric lens (56) receiving light emitted from the light emitting diode, wherein the second end is configured for focusing the light received at the first end; a transparent shield (protective sheath-see col. 18, lines 52-60) configured for protecting the aspheric lens from physical contact during use and for allowing light to pass through the transparent shield. The lens and shield are removeably attached to light source (col. 18, lines 58-60). Thus, the device has a means for holding the first end of the lens adjacent the light source, means for



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protecting the lens from contact, and frictionally engages the lens (holding it).

However, Melikechi fails to specifically disclose an embodiment where the first end of the lens is substantially flat and second end it curved.

In the same field of endeavor, Adam discloses a dome shape lens (see col. 6, lines 45-52) in curing device where a side is hemispherical. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to include this feature, since it is known in the prior art of curing devices to substantially direct light in a forward direction and can be use with LEDs.

Regarding claim 2, Melikechi fails to specifically disclose the lens comprises one of the claimed materials. However, the Examiner takes official notice that lenses made of the claimed material, especially glass and plastic, are well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to design a lens from one of these claimed materials, since they are well known materials and the materials produces lenses with known light transmittance qualities.

Regarding claims 3-4, Melikechi discloses the focusing assembly as defined in claim wherein the aspheric lens is one of either hyperbolic, ellipsoidal, and parabolic (see figure 3a and col. 15, lines 18-20).

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Regarding claim 7-8, Melikechi discloses a transparent shield (protective sheath-see col. 18, lines 52-60) configured for protecting the aspheric lens from physical contact during use and for allowing light to pass through the transparent shield.

Regarding claim 11, Melikechi discloses the light-generating source is comprises an LED (see element 44 of figure 3a).

Regarding claim 12, Melikechi discloses an optical device with an aspheric lens having a first end and a second end, wherein the first end is configured for receiving light emitted from the

light-generating source, and wherein the second end is configured for focusing the light received by the first end; and a transparent shield configured for securely holding the lens in place with the first end held facing the light-emitting source, wherein the transparent shield protects the lens from contact while enabling light to pass through the transparent shield (protective sheath-see col. 18, lines 52-60).

However, Melikechi fails to specifically disclose an embodiment where the first end of the lens is substantially flat and second end it curved.

In the same field of endeavor, Adam discloses a dome shape lens (see col. 6, lines 45-52) in curing device where a side is hemispherical. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to include this feature, since it is known in the prior art of

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curing devices to substantially direct light in a forward direction and can be use with LEDs.

Regarding claim 13, Melikechi fails to specifically disclose the lens and shield comprises one of the claimed materials. However, the Examiner takes official notice that lenses made of the claimed material, especially glass and plastic, and shield barriers made of optically transparent plastic material are well known in the art. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to design a lens from one of these claimed materials, since they are well known materials and the materials produces lenses and shields with known light transmittance qualities.

Regarding claim 14, Melikechi discloses the focusing assembly as defined in claim wherein the aspheric lens is one of either hyperbolic, ellipsoidal, and parabolic (see figure 3a and col. 15, lines 18-20).

Regarding claim 21, Melikechi fails to specifically disclose a lens with a hemispherical shape to a side.

In the same field of endeavor, Adam discloses a dome shape lens (see col. 6, lines 45-52) in curing device where a side is hemispherical. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to include this feature, since it is known in the prior art of

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curing devices to substantially direct light in a forward direction and can be use with LEDs.

Regarding claim 29-30, Melikechi discloses in figure 3A the first end is adjacent the LED with a gap between them.

Regarding claims 34-35, However, Melikechi fails to specifically disclose an embodiment where the first end of the lens is substantially flat and second end it curved.

In the same field of endeavor, Adam discloses a dome shape lens (see col. 6, lines 45-52) in curing device where a side is hemispherical. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to include this feature, since it is known in the prior art of curing devices to substantially direct light in a forward direction and can be use with LEDs.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Melikechi et al (US 6,511,317) in view of Adam et al (US 5,711,665), further view of Lundvik (US 5,797,740).

Regarding claim 9, Melikechi and Adam fail to specifically disclose the design of the protective sheath.

In the same field of endeavor, Lundvik teaches using a conical light transmissive element with an apex (1) for directing light is beneficial to dental light curing devices (see abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi and Adam, to provide this claimed design, since Lundvik teaches it provides good exposure and thus good lighting direction/points when filling teeth.

11. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Melikechi et al (US 6,511,317) in view of Lundvik (US 5,797,740).

Regarding claim 40, Melikechi and Adam fails to specifically disclose the design of the protective sheath.

In the same field of endeavor, Lundvik teaches using a conical light transmissive element with an apex (1) for directing light is beneficial to dental light curing devices (see abstract). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Melikechi, to provide this claimed design, since Lundvik teaches

*Allowable Subject Matter*

12. Claims 10 and 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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13. The following is a statement of reasons for the indication of allowable subject matter: Regarding claims 10 and 17, prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the dependent claims, in such manner that a rejection under 35 U.S.C 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in independent claims, which at least include a the second end of lens focuses light for the generating source into a column of light having a diameter of about 8 mm at a distance of about 3mm to about 5 mm from the apex of the transparent shield. .

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 1-5 and 7-41 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M Harrington whose telephone number is 703 308 9295. The examiner can normally be reached on Monday - Thursday 9:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703 308 4883. The fax phone number for the organization where this application or proceeding is assigned is 703 872 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



AMH

Alicia M Harrington  
Examiner  
Art Unit 2873



Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800